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Melvin Anderson oral history interview by Yael V. Greenberg, April 29, 2003

M. W. Anderson (Interviewee)

Yael V. Greenberg (Interviewer)

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USF Florida Studies Center
Oral History Program
USF 50th History Anniversary Project

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Current Position: Professor Emeritus
in the College of Engineering
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Interviewer: Yael V. Greenberg (G)
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TRANSCRIPTION

G: Today is Tuesday, April 29, 2003. My name is Yael Greenberg, Oral History Program Assistant for the Florida Studies Center. We continue a series of interviews in our studio here in the Tampa campus library with USF faculty, students and alumni in order to commemorate fifty years of university history. Today, we will be interviewing Dr. Mel Anderson who came to USF in 1969 as an associate professor of the College of Engineering. He is currently a professor emeritus in the College of Engineering. Good morning, Dr. Anderson.

A: Good morning.

G: Let's begin by you taking us to the year you arrived in Tampa and what circumstances brought you to the University of South Florida.

A: I was a faculty member at Louisiana State University at the time, and the youngest faculty member in the College of Engineering at that time. There were a variety of things that came together, I believe, that prompted me to apply here. My wife wasn't particularly happy with the winters in Louisiana, which are damp and drizzly. I very much like saltwater fishing and it was about a four-hour ride from Baton Rouge to the

saltwater. As I said, I was the youngest faculty member at an old university in the college. Everything was tradition even though I was anxious to perhaps make some changes. My college roommate was living in Florida. We made several trips over here and found it very pleasant. The university was new and getting started, so I saw the advertisement for the position, I applied, was offered a job and accepted. It looked like a great time to bring in new ideas and make some changes, because everything was new.

G: Where did you see this advertisement?

A: It was in one of the engineering journals, *American Society of Engineering Education*, which is read by most engineering faculty.

G: Can you tell me about the first time you saw the campus? What did the campus look like and what did the surrounding areas of the campus look like?

A: Well, the campus was fairly stark, obviously. There weren't anywhere near the number of buildings there are today. There were trees in this central part of the campus. There were quite a few sand paths where there are now sidewalks, where students were just simply walking across the grass and had worn a path in the sand. Certainly, one of the tremendous changes or differences is Fowler Avenue. It was simply a two-lane road. The interstate 275 was new at that time. I do remember after I'd been here a couple years, there was a fellow who was a dollar-a-year government man. He was in an environmental group in Florida and then he went to the national level, Matt Reed. He spoke on campus at that time, and he said one of the greatest things your students can do is to convince the legislature to build a park from the university down to the interstate. He said, because if you don't somebody that's just going to be a mass of plastic signs and

stores and businesses. He sure was right. That's exactly what it's turned out to be. He said it could have been an attractive boulevard with trees and all of that, but that never came to be.

G: You were hired as an associate professor?

A: Correct.

G: In the College of Engineering, how was the department organized when you first came here in 1969?

A: At that time, the college had five departments and I was hired into a department known as the Department of Structures Materials and Fluids. There was an Industrial Systems Department; Electrical Systems Department; and a Department known as Energy Conversion, which really housed chemical and mechanical engineering.

G: Were there a lot of faculty in those five departments?

A: No, there was a small number of faculty. Of course we had fewer students, too, in those days; classes were smaller. On the other hand, you tended to teach a lot more classes than you do now days. It was not unusual for a faculty member in our department at that time to perhaps have fifteen or sixteen contact hours, because you'd have the lab classes plus the regular lecture courses. Some of the classes were quite small, maybe six to ten students.

G: Were these, you had mentioned five departments, within the College of Engineering?

A: Yes.

G: Were they integrated?

A: There was one department that no longer exists, it was called Pre-Engineering. All

engineers came into the Pre-Engineering department and took a common first year of courses. That's changed drastically now days. There was a common-core curriculum in the College of Engineering so that each student had at least one or two courses in each of the other departments. So, a student of Instructors, Materials, and Fluids would indeed have a couple courses in the Industrial Department, in the Electrical Department, and the Energy Conversion Department. The university had just gone to the quarter system when I was actually interviewed they were on a trimester system, and they went from a trimester to the quarter.

G: Let's go back to a couple things you said. You mentioned when you first came here you were excited about the idea of presenting new ideas and the feeling that this was a new university. Was that feeling something that you picked up in the interview or was that feeling something that really something you sort of felt when you first came here in 1969?

A: No, it was definitely at the interview period, and also it was awareness of what was happening in engineering education. In 1969, the computer was just beginning to have an impact upon education. That was still in the era when you had cards and one mainframe on campus, so you could see that that was going to change engineering education. Coming here with a small number of faculty who were quite interested in doing new and different things, I could see the opportunities here.

G: Who hired you?

A: Dr. John Griffith was the chairman of the department at that time. Ed Kopp was the dean of the college, and it was John Allen's last year when I came here for an interview.

- G: Did you ever have an opportunity to meet John Allen?
- A: Yes, I met him when I came for an interview. Certainly, we had other contact after that. Even today with his wife Grace, we still speak occasionally and she's quite friendly with my wife; they send notes back and forth and things like that.
- G: Can you describe what vision John Allen had even though he was in that last year, but could you get a sense of John Allen?
- A: Well, he's very committed to academics, obviously. Even in his early days there was pressure for things. People mentioned football or sports and he said, no this is going to be an academic institution known for its academics. He was a very pleasant person, but certainly he felt like that was the purpose of the university, quality education.
- G: This idea of a pursuit of excellence, quality of education, was that something that was brought to your attention while you interviewed or could you really feel that when you first came here in 1969, that sense of academia?
- A: There was a quality of both. Certainly, there were a lot of people in those days that came with the excitement, well here's a new university to try new things. We can have impact on education. Changes are happening, we can be a part of the changes. So yeah, I think it was obvious both during the interview process and certainly as I came on campus and knew people from other departments and other colleges. It was a time of change and an exciting time on campus.
- G: You had mentioned working at Louisiana State University and how you were the youngest faculty member. When you came here, how was the age variation in your department? Were you still the youngest?

A: I'd have to think another bit. I used *youngest* in the sense that I can remember wanting to do some things at LSU and I was told no we've done it this way and we're going to continue to do it this way. Whereas, when I came here John Griffith's attitude was this is your course and how do you want to do it? So, it was the freedom of taking your courses. I'd been out of graduate school a few years and so you come out with a lot of excitement and knew knowledge to you and you want to impact it upon the students. I guess I still might have been the youngest, or there may have been one other faculty member who was younger than me in the department. It was a small department, only about five people.

G: In terms of diversity within your department, were there women professors teaching engineering? Were there African Americans in the program?

A: There were no African Americans teaching anywhere in the college. I think there was one female faculty member in the Pre-Engineering program. She taught Engineering Drafting; but in the department I was in, Structures, Materials, and Fluids, there was no females. There were very few female students in the college. I was thinking about that coming in this morning. I was thinking what you might ask me, and I would say less than 1 percent of female students [were in engineering]. In fact, the first couple of years I was here I can't recall having a female student in class, and I taught a course that all the students took from the different departments, a fluids course. Certainly, it was less than one percent, whereas, now days it's about twenty percent perhaps in the college. We're hopeful that that will grow more.

G: You mentioned the Department of Structures, Materials, and Fluids.

A: Correct

G: Tell me a little bit about your department it self, what the goal of the department was and what was Structures, Materials, and Fluids?

A: It was unusual, in fact I believe, and am fairly certain of this, that it was the only Department of Structures, Materials, and Fluids that existed. Although, it had two tracks you might say, or two different areas within it. And one, it was like a traditional civil engineering department which does with structures and fluids mainly, and it also housed what some colleges called the engineering mechanics, which is a more theoretical approach to engineering. It had, for a small group, an exceptionally strong group for materials engineering, which in many cases is a separate department. So, it was a kind of conglomerate and for a number of years it kept that name, Structures, Materials, and Fluids; until it grew in size. It was a little bit tough on our graduates because they went out as a graduate of Structures, Materials, and Fluids which was SMF and they called themselves Smuffs. Of course, when you applied for a job no one knew what a Smuff was. It wasn't until the 1980s that we changed the name to the Department of Civil Engineering. Later, it became Department of Civil and Environmental Engineering.

G: Why was that change in the name necessary?

A: It came about probably for several reasons. The vast majority of the students certainly were civil engineers and they were taking subjects leading to that and they wanted to go out and get jobs in civil engineering. I think it was the provost at that time, but he wanted to identify us. SMF gets confusing. Is it SFM or FMS? What does that mean? It wasn't a traditional name, so he said something. I was serving as chairman of the department at

that time. He said that's a funny name. The faculty were of the opinion that yes we should be more recognized and make it easier for the students. We got accredited nationally. There's an organization that accredits engineering programs called Accreditation Board for Engineering and Technology (ABET), and we were the only accredited program in Structures, Materials, and Fluids in the nation, so that made it a little bit difficult for our graduates. So, we decided that it would be better to name change and so we went ahead and did that.

G: You mentioned that when you came here in 1969 the university was moving from a trimester system to a quarter system. Did you feel any reactions from your students for or against this, or was this looked upon in a positive light? Why was USF even considering this?

A: I understand that when the university was started the idea of the trimester was the fact that they felt like because of the climate and the visitors in the winter that a number of students might take the middle semester off and work at Busch Gardens when a lot of people came. After several years it was obvious that students didn't do that. They still fell into the regular pattern of taking the summer off, which was a regular semester. I wasn't involved in the decision. As I said, it happened right before I came, but there was a change to the quarter system. I think there was mixed reactions. Some students liked it because they felt like they didn't have to have as much time spent in a given subject before they took final exams and there was a break after every quarter, which they liked. So, there were students that liked it. There were others that felt like it moved too fast of a pace because you met more frequently per week, so it gave you less time to work

problems and things like that between class sections. It was kind of a mixed reaction.

G: In terms of your students in those early days, why were they interested in taking engineering courses?

A: Well, I think for many families engineering is kind of the gateway profession if you will. For many people who come from blue-collar families it's looked upon as a way to becoming a professional. It's a four-year degree that leads to it as opposed to law or medicine, which takes more time in college. So, their backgrounds, typically, are not as strong financially. I think that was part of it, and the job opportunities then, as now, still remain pretty good for engineers. They were going out with starting salaries that were higher than graduates from other colleges on campus. Plus, the fact that it's a challenging type of curriculum where you're involved in problem solving. I think some students are attracted to it because they like the idea that we can tackle a problem and come up with a solution to solve a problem. Certainly, for people who like mathematics it's inviting.

G: Was an engineering degree something that a student could get in four years? I know that some other universities could take five years. What was sort of the degree structure at USF?

A: It was set up so you could easily get it in the four years if you took three quarters each year. Indeed, we had some occasional student that would go through, although I would council him against it, they would go four quarters a year and they'd finish up before four years. I would try to tell him to enjoy the college life a little bit. There's more to college than just academics. I would say that a typical student, and I'm talking now thirty-three

years ago, was probably slightly over four years. But it certainly wasn't because they didn't have the opportunity. It was very possible to get out in four years if you wanted to do that.

G: What were some of those early courses that you taught in the department of Structures Materials and Fluids? Can you give me an example of that?

A: Well, because of the small faculty you tended to teach several different types of courses, but my major area of interest was in the fluid mechanics. I taught a course in fluid mechanics which was taken by students throughout the college. In those days it was one of what we called a core course that every engineering student would take. Then, specialization courses within the department were like hydraulics and water resources engineering, which my area of major interest and had to do with surface-water hydrology and ground-water hydrology and courses in that area. So I taught those and taught the labs associated with them, but then because of our size occasionally we would teach other courses like Engineering Statics which is a basic mechanics course. Here again, every engineering student took it. So, sometimes I would teach a statics course or sole mechanics. Again, because of our size we were very ambitious. We wanted to offer a variety of courses, and so you had to teach areas other than your major of interest.

G: Where was the Department of Structures, Materials, and Fluids physically located when you first arrived at USF?

A: When I came here they actually were then in the Kopp Engineering Building. The college started in 1964, the College of Engineering, and they actually taught classes in a building known as Engineering Research Building, that's over by the water tower behind

the purchasing department. It's a windowless, brick building with large overhead doors that come up on each end. They had divided that up simply by taking bookcases in the open, large bay area and divided it into sections. That's where they had classes for students and they ran the classes there as well as our labs all within that one, open-bay area. Then, as the Kopp Building became available, which was probably around 1966, they moved in. So when I came in, in 1969, the Kopp Building was fairly new and all of engineering was located in that one building. In fact we were small enough at that time that all four departments were there plus the ground floor the ROTC had offices in the building at that time. The Kopp Building is being renovated right now, but it was an interesting concept at the time in that when they got work for the architects to design it, in the center part of the building they had an open core that was about six feet wide and it ran completely open from the basement up through the third floor and all the labs butted against that open core. There were walls, but you could then punch through the walls and get steam or electric or water. So as you'd move the lab or equipment in the lab it was very easy to change utility connections and so forth. It was a little bit of a unique design at the time and very functional, worked out well.

G: Was that design something proposed by the engineering faculty?

A: I think it was Dean Ed Kopp primarily working with the architects. He's given credit for the concept.

G: I know that you're recently retired, but did your office move locations or did you remain in the Kopp Building for the majority?

A: Oh, I have a number of offices. Most of the offices in Kopp Building do not have

windows, which is not the most desirable aspect. My first office was in a hallway between classrooms and labs, which was every fifty minutes very noisy because all the students would be going one way or the other in the hall. I think my next office might have been in the basement of Kopp, and then I moved up one to the first floor of Kopp. I became chairman of the department in 1978, so then I moved into the chairman's office which is on the first floor and has a window that's about twelve inches wide or less. That's a big change to be able to look out and see daylight. I was there for about ten years, and then I was appointed associate dean and moved over to where there's Engineering Building Two. Now, I still have an office, being professor emeritus, in the Engineering Building Three, in the new building, which is quite nice.

G: Let's talk about you becoming chair of the department in 1978. Can you tell me sort of what circumstances brought you to becoming chair in 1978?

A: Well, the chairman of the department, John Griffith, had decided that he wanted to go into teaching full time and give up the responsibilities of the chair. Ed Kopp, who was dean, called me into the office and asked me if I would be interested in becoming the chair of the department. I think I told him I would like to think it over, talk to my wife about it, and we talked about it and it sounded like a good opportunity. I came back and accepted the position. Unfortunately, he died of a heart attack a few months after that. I think it was the fall of 1978 I believe I became chair, and then he died around February 1979 or something like that.

G: How do you go from an associate professor to the chair of a department? What kinds of things did you initiate?

A: Well, I had become professor before then. I moved in rank from associate to full professor. I don't know that I made any immediate changes, initially. With time I certainly made changes as I saw them appropriate. One of the things I did that I felt worked out well was to develop an evaluation system with the faculty. We together worked out what we thought a faculty should do to be considered an outstanding faculty member to get an increase and that type of thing. It was sort of an annual scorecard if you will that was according to the number of courses they taught. The university, and particularly the College of Engineering, was just beginning to get involved in research at that time. Prior to that the emphasis on teaching was quite heavy. As I said, we had maybe fifteen or sixteen contact hours so that research was pretty much left to the summer. By the time I became chair we had more faculty and we had cut back the teaching load and so we were encouraging faculty to do research and publication. Our graduate program certainly had grown over the previous time period. All of these were changes that came about and then they required changes in the department as far as assignments and lab changes. When I first came here we were small enough and we had enough space that with almost every engineering course you could have a lab associated with it, but we quickly outgrew our lab capacity. When you had eight or ten students in a lab it worked out alright, but the labs were very small. In order to have labs as the class sizes grew you had to have multiple lab sections. It simply didn't work out that there were enough hours to handle it, so we did cut back on the lab courses for engineering students. Total hours for engineering have been cut back over the years, the hours required for a degree, by demand of the legislature actually.

G: It seems like you became chair of the department when the department was really starting to grow. Why was there such an expansion and growth period of the College of Engineering at that time?

A: Well, I think the university as a whole was growing and becoming recognized so that people were beginning to apply. Initially, when you start a college, we started in 1964, you're very small and no one's ever heard of the college. So, as you begin to turn out graduates they get jobs locally and they talk to young people or they talk to their peers and people become aware of the programs. I think the name spread. Certainly, we were doing things to try to spread the name. We started something called the Engineering Expo which was an open house for two days in which there were exhibits both by students and by local industry and things of that fashion. We would send out invitations to local high schools and junior highs and they came on campus. I think people became aware that there was a college of engineering. In many cases, when I first came here, I would meet people in Tampa that were unaware of the fact that we even had engineering. I noticed nationally, as I went to meetings, people were totally unaware of South Florida. Well where is that? I remember one amusing incident when some of our students competed in a man-made submarine contest down in Ft. Lauderdale and they had USF on there painted on the side of the submarine. Some people who were Floridians thought wow you drove all the way from San Francisco. They thought it was the University of San Francisco. We weren't well known even the state of Florida, so that helped as the name spread. Job opportunities were very good for engineers in the 1970s and so that certainly attracted people to engineering.

G: You talked about the idea of research becoming an important aspect of the university, whereas previously there had been an emphasis on teaching. Why had that shift come about? Why do you think that shift was coming about?

A: Well I don't mean by saying that that there was a de-emphasis on teaching, but initially, when the university started, certainly funding was related to credit hours. You had to have credit hours in order to get the funding for the university, so obviously there was an emphasis on trying to get more students here and more teaching. As the university matured research began to play a more prominent role, I would say, for a variety of reasons. One, in order to keep cutting-edge faculty or sharp faculty they want to be involved in research and new ideas, development, and so forth and so on. If you want to keep those people you have to make a culture in which they can do those things and make them comfortable. Also, our graduate program was beginning to grow and most of the full-time graduate students are supported through research activities at the College of Engineering. So there again, in order to support graduate students, faculty were getting contracts and then hiring students to work on the contracts which in turn they used for their thesis or, later on as we got the doctoral program, their dissertations. Then, nationwide there was a gradual increased emphasis on research, particularly in engineering. I would say certainly in the 1940s and 1950s there wasn't that, but with the advent of Sputnik and the space program engineering changed and became a probably a little more theoretical or esoteric than it had been previously. The urge was to get involved and develop new things in research.

G: In terms of degrees, when you first came here what was the maximum degree that a

student in the College of Engineering could receive, and how has that changed?

A: When I first came here every student got a bachelor of science in engineering degree if they completed the requirements; it wasn't designated. Then, we could offer a master's of science degree to the student. We were in the time of the Vietnam era. Some students would stay. We had a five-year program in which you could enroll and get both the bachelor's and the master's degree, and draft boards would recognize that you didn't get your bachelor's until you got your master's, so it did keep them out of the draft another year. So, probably that enticed some people. So initially, that was as far as you could go was a master's degree. There was an engineering program at Florida State University, which is a very fine program in engineering mechanics. The dean up there died and for a couple years the program went along without a dean. I think they had like a three-person head or something like that, but the powers that be at FSU at that time decided they'd like to get rid of engineering. So, the faculty up there had a choice of relocating on campus like perhaps go to the math department or the physics department or something like that. Obviously [they could] leave the state, or they [could] relocate at one of the existing state universities. So at that time we gained five outstanding faculty members from Florida State University who were entitled to bring their doctoral students with them. So, we had a couple of years there where we had faculty who could award doctoral degrees, but we could not enroll any students of our own into the doctoral program. I think as the university grew it had more political clout. Initially, there was a certain amount of resentment or pressure against USF by the more established universities, UF and FSU. Particularly in engineering I think there was some feeling that the University of Florida

should be the only school of engineering. So that existed, but as the university grew, as the metropolitan area grew, I think politically there was more clout and we could get it through the regents and the legislature that yes we could have a doctoral program in engineering. Certainly, that contributed to the growth of the graduate program and to the research, because many projects are long term and you actually need doctoral students to be involved.

G: Why do you think there was resentment from other state universities towards USF?

A: Maybe resentment was a hard word; maybe just opposition in a sense of we would be taking their students away. If you look upon the educational pie, then we'd be taking a slice out of that pie that came through the legislature. Fortunately, Florida was growing too in the sense of the population, so the budget was naturally growing with increased industry in Florida, buildings, people moving here, and more students. I remember when I first came here it was rare to have students who had parents who were born in Florida, they were certainly a minority. By the time I finished teaching, most of the students had parents [from Florida], and in some cases I taught students who their grandparents were my students. That [was a] change. Initially, there were very few people that actually were born here. So all of that added more people applying to school and there really hasn't been any serious competition I think, but initially there was that idea that we would take a portion of the legislature budget that they would have gotten if we didn't exist here.

G: You said that you were chair of the department for ten years. Where did you go next after that?

A: The department changed. You asked me earlier what did I change. One of the things was that I was very much involved with the idea of changing the department name to Civil Engineering. Then, when Michael Kovac became dean of the College of Engineering about a year after that, he asked me if I would associate dean for the college and handle the academic aspects of the engineering program. He was a very research oriented person with a lot of very good, innovative ideas in terms of research and where he'd like to see the university go. So, that added to the changes that occurred in the college.

G: What kinds of programs did you help with as an associate dean?

A: As associate dean my major function certainly was the academic issues. Unfortunately, or maybe fortunately, I got to see a lot of it to extremes. We handled all scholarships at that time through the office, so I got to see the very bright students; but also we handled all the dishonesty or cheating instances through the college, so I had to deal with those students. All academic programs, course changes, new courses, any curriculum changes were handled through the department. You worked directly with students in the sense of scholarships and we had some funds for any student who had a particular academic need; emergencies and that type of thing got handled. So they were the major issues dealt with in the department. [We] were fairly heavily involved with the general budget of the college.

G: You mentioned dishonesty and cheating. I'm sure that wasn't a pleasant experience as an associate dean. Was there a lot of cheating and dishonesty going on or was this just an occasional incidence?

A: It was [a] more occasional incident. I think it's more prevalent now days then it was in the early days at that time, but it would happen. Certainly there were options as to what you do, whether the person was simply given a zero on a test or given a zero for the course. In a few extreme cases [the person would be] dropped out of the College of Engineering depending on the degree of it. It wasn't a widespread problem.

G: In those early days did you interact with faculty outside of your department?

A: Within the college, yes, because we had the four or five departments right in the building so we saw each other, our rooms were together, and we worked on some early research projects together. There was probably more interaction between departments than there is today, because as you grow in size there's less opportunity for that interaction. When you're all housed in the same building, certainly you see each other day to day, and the faculty was a small group. Ed Kopp was an interesting dean. He was a very personable individual. He spent an awful lot of time just in the halls of the college. I think Ed knew most every student by name, and certainly if he didn't his assistant Mrs. Nelson knew everyone and their family. Being small, it was more like a family unit. I was talking to some students just the other day about it. We used to have an annual faculty, student dance in which the students and faculty would get together in a local hotel or something like that and have a dance once a year. We always had an annual picnic for the whole college, in which the faculty would bring their family. Again, we knew each other, we knew our children, and so it was a closer group in that sense.

G: You mentioned working at Louisiana State University.

A: Yes.

G: How did USF differ from Louisiana State University and other institutions that you worked at?

A: Well, it was tremendously different in some aspects, and certainly the age [varied].

Louisiana State University was an old, established university. As I indicated earlier, most of the faculty in the department I was in had been there for many years so that if they had used a certain book in a certain course they wanted to continue doing that. They weren't all that quick to want to change. I remember the great argument at that time was whether or not they were going to allow students to use a calculator as opposed to the slide rule.

Some faculty said, well they'll never use one in my class. They were adamant about that.

LSU had a very good athletic program. When I first came here that was one of the things I missed, certainly the Saturday night football at LSU in the Tiger Stadium. They would pack that large stadium for their games; that was exciting. They had a good basketball program. Pistol Pete Maravich who went on to some fame was playing basketball there at the time. It had all the things, I would say, that a large established university had. The students lived on campus, a very large percentage of them. The student center was a large well-established building. That didn't exist here at the time when we first came here. We were just growing. It was almost a pre-teen or a teen as a university and certainly as a college. The laboratories at LSU were very large established labs, whereas here the labs were much smaller and there was newer equipment in many cases here then I had there. Those changes were evident.

G: When you came here in 1969, where did you live in relation to the university and how did you get to work?

A: Interesting. At the time we very much wanted to live Temple Terrace. We looked hard and there just was nothing on the market in 1969. My wife was looking while I was teaching. I started teaching right away and she spent the time with two little children looking for housing. She found a place out off of Fletcher close to Lake Magdalene. Initially, we lived in a rental house. We moved here and a faculty member in the physics department was on a sabbatical or something, so we actually rented and lived in their house while we looked for a house. That worked out quite well for us. That first summer I came here in May or June and started teaching immediately for the summer session. We lived in the rental house. We bought a house over in an orange grove on a small lake. There were only three houses on the lake and we were surrounded by orange trees. Fletcher was a winding path; they said it had been a cattle path that they had just black-topped. So it sort of went winding over towards what is now the Dale Mabry extension. We bought that and we've been there ever since, so we've been in the same house since the 1970s or late 1969 I guess we moved there. Needless to say, I was eight minutes from the university because about the only traffic light was where you went under the interstate. I could figure from my house to the university to my classroom in about eight minutes because there was no traffic. Sometimes now that's a half and hour trip because, I don't know the number, probably fourteen or fifteen traffic lights have been put in over that same path. Obviously, Fletcher has been widened and [there's] a lot of commercialization along it, so traffic is very heavy.

G: Were there things in those early days that really stand out in your mind, relationships with professors, the overall feeling of the university? Are there things that you really

want to talk about or mention that are really different from today, or things that really stand out in your mind in those early days?

A: Well, one of the things I mentioned earlier that certainly stands out was the lack of female students. I remember when we got a chapter of the National Honor Society, Tau Beta Pi, for the first couple of years we had no female initiates into the Tau Beta Pi. I can remember a fellow who served as president when we got the first female initiate. Now days, probably close to half of the initiates are female students. Certainly, the officers have a very high [number of women]. Even though they're twenty percent of the student body they are a much higher percentage of the student officers, the female students. I think that's been a very good change for the college, and certainly I think it's good for society to have more female engineers. Faculty have changed. In the early days I'm fairly certain we only have one female engineer in Pre-engineering and then with time we've gotten a few more in faculty. We still have a real lack of female faculty in the college, but that's typical of most colleges of engineering. We're still not near the number of female PhD engineers going into teaching. We advertise positions, but it's rare that we get a female applicant. The department has three female faculty members, so that was a significant change. The closeness of the faculty has been a change both within the college and within the university, because there again it was a small group. You tended to know, like I said, everyone in the College of Engineering. You knew every faculty member and in most cases you knew their spouse and quite often their children because of the small size. You also knew faculty in the other colleges. I developed friendships with faculty in other colleges that have still continued today, like Bob

Anderson the dean of the business college. I knew Bob because his kids and my kids were about the same age and he was in the College of Engineering, but they went through grade school together. So you build friendships. I've got several friends in the biology department and chemistry department that have been here for a similar time period as me.

In fact, a lot of them are retiring this year or [did retire] last year. Again, it's a matter of size that you begin to know everyone.

G: When you came here in 1969, did you think you'd be here thirty-three years later?

A: No, I did not. The original home both for my wife and myself was in Maryland. We both were the first of our families to move out of the state. I think we both felt like eventually we would end up in Maryland or Virginia, but my family fell in love with Florida. I had a few chances over the years for some people, and they tried to entice me to take other positions. Jokingly, my wife and kids would say, well we're going to stay here regardless of where you're going dad. We've been very happy in Florida, and certainly we've been very happy at the university. We've liked it.

G: In terms of the 1970s, there were many things going on throughout the world in the 1970s. Did you feel these national events on campus? Were students talking about the politics that were going on at the time?

A: Yes, there were a lot of things happening, as you say, internationally that affected us. Certainly, engineering was undergoing a big change academically speaking. [It was] becoming less applied and a little bit more theoretical. The math requirements were increasing. The advent of the computer significantly changed. In those days it was just beginning to come in. Even going from a slide rule to a calculator certainly made

changes in engineering. Internationally there were changes. The environmental issue became very big on campus. For a couple years there I taught a very interesting course; I thought was very interesting I hope the students did too. We had people from seven or eight different backgrounds and we called it dialogue for survival. We had our faculty from the business college and from, at that time, a college of natural science. So, we had [a person] from natural science, we had someone from fine arts, someone from arts and letters. We had a very diverse faculty of different backgrounds. We taught this course in which we brought in outside speakers that would speak to the students once a week in a large auditorium. Then, for the other sessions during the week each of us faculty members would meet with a small group of students, like twenty or twenty-five students. We discussed environmental issues both from the economic sense, which was great because as an engineer I could bring in the engineering aspects of environmental issues. Yes, people want power but there's a price you pay for power in terms of the environmental impact. The business people would talk about how it related to the environment. Aesthetics would become involved as people from fine arts came in. It was a very open, free discussion and a lot of students were quite involved with environmental issues. I remember making signs or showing up at different events and that happened. The space program was another national/international thing that was happening in the 1970s. There was a lot of interest in that. I can recall taking some students over to the Kennedy Space Center as it was developed. Certainly, that was very high when any type of space event occurred. Like today, I noticed in the paper on maybe on page ten they had a picture of the astronauts going up to the space station. Well, in the

1970s that would be front-page, big news. Every space launch was a significant event where we would stop and listen to it.

G: Was Vietnam something that you remember students taking part in?

A: Yes, I remember there were the latter years of the Vietnam War. We had students that had certainly served there. We had some students that were protesting against it and some in favor of it. Activities were not as prevalent on this campus as perhaps some other university because of the lack of student housing. There were very few students that lived on campus. It's nice now to see the change as we get more dorms, more students on campus. I think it increases the typical university atmosphere.

G: Where were most of your students living?

A: Well, a lot of them lived at home in the early days. We drew from the immediate Tampa Bay area, so we had students who would drive from St. Pete or Tampa. It was the beginning of apartments being built around campus, so students were living in apartments. But I would say the majority of our students in the very early days were commuters. They lived at home and parked.

G: You mentioned the use of computers in engineering. Can you talk a little bit about how that affected USF and the College of Engineering, and how that's really changed in thirty-three years?

A: It's changed significantly. As I went through, certainly undergraduate school, there were no computers available for students in the 1950s. In graduate school I began to be introduced to the computer world. When I came here there was one IBM mainframe on campus, which had a capacity of 250K, which is much smaller than the typical desktop

computer now. They had a system where in order to run a program on the computer it depended upon the amount of space you needed in the computer and how long your program is taking. I was interested in doing some optimization work, which I needed all 250K capacity on some research with another faculty member, Dr. Ross, and myself were involved in. I used to sometimes have to wait a week to get a run on the computer, and at that time you carried a deck of cards to the computer. It was a box that would be full of these computer cards. If you had one comma or one semi-colon where it should have had a comma or something like that you might wait a week and then it wouldn't run. Then, you would have to lug this deck of cards back and go through it and find your mistake, correct that one mistake, and wait until you got it. You would turn it again and again. It would sit in a cue until the computer was ... A lot of people were running things that took three minutes or five minutes or ten minutes, so they would cue up a lot quicker. But when you needed capacity in those days, I think some of our runs took like five hours before we would get this program to run in that little bit of space of 250K. As an individual that certainly had an impact. Within the students the change that occurred in the late 1960s, early 1970s was the calculator. The first calculators were fairly expensive. I know one of my colleagues bought one, and again I was a young faculty member. He got a calculator that cost like \$900, which now that type of calculator they almost give away at trade fairs. It went a little bit farther than that; it did some scientific things. That began to change engineering. Perhaps some for the good and some for the bad, because in an engineering problem when you use a slide rule you have to know about approximately what you're answer is going to be, at least you have to have a sense

to place its magnitude. Now, with a calculator you can carry these decimals and you can know to an absurd extent the decimal places perhaps. Sometimes a student would get preoccupied with how exact it is and it could not even be that exact. I mean you could carry it out to many decimal places. It did impact initially in that you had a few students that had calculators. Well now, were you going to let them use a calculator on a test when the other students were using a slide rule? Was it giving them an unfair time advantage in terms of time and speed? Ultimately, as the price came down more students had it and then we more readily accepted the calculator. It also enabled us to change the types of problems, because the amount of time it would take to do problems by use of the slide rule and manual calculations would be decreased significantly, and so more interesting, thought-provoking problems could be introduced. I think that had a very significant change on how we taught and how we did lab work and things of that fashion. Students could sit right in a lab and quickly do their calculations rather than just taking the data and going home and have to calculate this and find out they missed something. Then, they would have to try to get back and collect that data, whereas [now] they could it right away in the lab with the calculator. They could very quickly see if they lacked something. The computers brought about different changes. It's enabled a lot of solutions that could be done by a much smaller number of people. You take something like the Skyway Bridge which would take rooms of engineers to calculate could suddenly be done, because of the software available, with a handful of engineers. But academicians faced the problem do you train people to have a deep understanding of the theory or as the employers would like to have them, they in many cases want them just to

be able to use the programs. As a teacher, an instructor, I wanted my students to have an understanding of the theory behind the program and you try to do both. You try to make them look very employable by exposing them to the programs, but you on the other hand need to still show them the theory and show them how to do those things manually or with a calculator so they have an understanding. I remember in the early days there were some students who just avoided the computer, they were afraid of it. We had to say, look it's like a pencil. You have to get used to it and use it like a tool. Of course now that's way behind us. Now, students come in who have lived on a computer for years, playing games and things like that, and so they're very comfortable with the calculator and computer. It's had a significant impact on design problems, on simulation problems. There were engineering problems that you simply couldn't work because of the time involved; the math was too intense. Now, you can crank it out and do it in a matter of minutes.

G: Where was the mainframe located?

A: The mainframe was located, I think, in the basement of the old library building. What they call that building now I'm not sure. I know where it is. It's north of us here, but that was where the library was located and I think it was in the basement there.

G: My final question to you is something that I've asked everyone who has partaken in the interview. If there was something that you could leave on the record, either about your thirty-three years of experience, a fond memory, advice to future students, something about USF as an institution; what would that be?

A: That's a hard question. You should have given me a little warning on it. Certainly, to

have seen the university grow has been a wonderful experience. It's like seeing your child grow. You see them mature and they change. To be apart of that has been very exciting. The one message I would say to students is to make sure you get the most out of your college experience; if at all you can afford it, to be a full time student. Avail yourself of the many opportunities on campus in addition to academics. You do an awful lot of your learning outside of the classroom. If you can live on campus and live with other students that's wonderful. You can work on your homework problems together, but also avail yourself of the things in the other colleges. I urge the engineering students to go to the plays, or if they have musical groups on campus or distinguished speakers listen to those. Interact with the other colleges. Be active in student government so that there's the opportunity to grow as an individual, not just academically but totally. My council to students would be enjoy it. It's a wonderful opportunity; it's a wonderful time of your life those four years in college or five years, whatever they might be, or six years.

G: Dr. Anderson thank you very much.

A: Okay, good.

End of Interview